(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 7 October 2004 (07.10.2004)

PCT

(10) International Publication Number WO 2004/084880 A1

- (51) International Patent Classification?: A61K 31/195, 31/216, 31/197 // (A61K 31/216, 31:197) (A61K 31/216, 31:195)
- (21) International Application Number:

PCT/US2004/008700

- (22) International Filing Date: 22 March 2004 (22.03.2004)
- (25) Filing Language:

Ţ.

English

(26) Publication Language:

English

(30) Priority Data:

60/456,835	21 March 2003 (21.03.2003)	US
60/486,148	10 July 2003 (10.07.2003)	US
60/509,570	8 October 2003 (08.10.2003)	US
60/534,871	8 January 2004 (08.01.2004)	US
60/548,250	27 February 2004 (27.02.2004)	US
60/551,671	9 March 2004 (09.03.2004)	US
60/551,551	9 March 2004 (09.03.2004)	US

- (71) Applicant (for all designated States except US): DYNOGEN PHARMACEUTICALS, INC. [US/US]; 31 St.James Avenue, Suite 905, Boston, MA 02116 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): FRASER, Matthew, Oliver [US/US]; 408 Gablefield Lane, Apex, NC 27502 (US). THOR, Karl, Bruce [US/US]; 109 Draymore Way, Morrisville, NC 27560 (US). BURGARD, Edward, C. [US/US]; 215 Cates Farm Road, Chapel Hill, NC 27516 (US). BRETTMAN, Lee, R. [US/US]; 183 Greystone Lane, Sudbury, MA 01776 (US). LANDAU, Steven, B. [US/US]; 44 Tanglewood Road, Wellesley, MA 02481

(US). RICCA, Daniel, J. [US/US]; 5855 Kiger Road, Rougemont, NC 27572 (US).

- (74) Agents: ERGENZINGER, Edward, R. et al.; Alston & Bird LLP, Bank of America Plaza, 101 South Tryon Street, Suite 4000, Charlotte, NC 28280-4000 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHODS FOR TREATING PAIN USING SMOOTH MUSCLE MODULATORS AND $lpha_2\delta$ SUBUNIT CALCIUM CHANNEL MODULATORS

(57) Abstract: A method is provided for using $\alpha_2\delta$ subunit calcium channel modulators or other compounds that interact with the $\alpha_2\delta$ calcium channel subunit in combination with one or more compounds with smooth muscle modulatory effects to treat pain. According to the present invention, $\alpha_2\delta$ subunit calcium channel modulators include GABA analogs (e.g., gabapentin and pregabalin), fused bicyclic or tricyclic amino acid analogs of gabapentin, and amino acid compounds. Compounds with smooth muscle modulatory effects include antimuscarinics, β 3 adrenergic agonists, spasmolytics, neurokinin receptor antagonists, bradykinin receptor antagonists, and nitric oxide donors.